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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/530,170

09/19/2005

Roderick C. Bryant

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GOTTLIEB RACKMAN & REISMAN PC
270 MADISON AVENUE
8TH FLOOR
NEW YORK, NY 10016-0601

EXAMINER

ISSING, GREGORY C

ART UNIT

PAPER NUMBER

3662

MAIL DATE

DELIVERY MODE

11/30/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/530,170

Applicant(s)

BRYANT ET AL.

Examiner

Gregory C. Issing

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,6-15 and 19 is/are pending in the application.
- 4a) Of the above claim(s) 1-3,6-10 and 19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 April 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 7/05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

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1. Applicant's election without traverse of Inventions I-III and V, in the reply filed on 9/24/07 is acknowledged.

2. Claims 1-3, 6-10, and 19 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected inventions, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 9/24/07.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 11-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. The language "a processor controlling a program" is indefinite and lacks clarity. The intended use language "to extract a signal power spectrum from the noise by averaging" is indefinite and fails to clearly and distinctly define the subject matter since it is unclear what structural limitation is provided by the intended use. Moreover, "the noise" lacks a proper antecedent basis. The language "wherein said program executes a FFT in which squared magnitudes of the FFT bins are filtered" is indefinite since it fails to clearly and distinctly define the scope of the subject matter. Additionally, "the FFT bins" lacks a proper antecedent basis. The language "an aiding source to transmit information to the SPS system" is indefinite since the "aiding source" is defined as being a part of the "system" thus transmitting information to itself is unclear. The terminology "SPS system" is unclearly written since it appears to be duplicative in a manner if SPS stands for "satellite positioning system". Grammatically, the claim is incorrect due to the lack of a conjunction joining the elements of the system.

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6. Claim 12 is indefinite since it is unclear how “the system dwells” wherein the system comprises a plurality of satellites, a receiver and an aiding source.

7. Claim 13 is indefinite due to lack of clarity of “1/Nth of the normal search step size” since what is normal is not definitely claimed and that which “N” represents is undefined.

Again, it is unclear how the “system” applies “1/Nth of the normal search step size”. The language “1/Nth of the normal search step size for N-fold averaging each FFT period” fails to clearly and distinctly define the subject matter which the applicant regards as the invention.

8. In claim 14, the language “and algorithm running in a processor that extracts the signal power spectrum from the noise by averaging” fails to clearly and distinctly define the subject matter so as to enable one skilled in the art to make and/or use the same. The language “the signal power spectrum” and “the noise” lack proper antecedent basis.

9. In claim 15, it is unclear how the “system” runs a filter”. The language “the squared magnitude” and “each channel” lack proper antecedent basis. It is not understood what “an autoconvolution array for each channel” is or how one skilled in the art would enable such.

10. The subject matter of this application admits of illustration by a drawing to facilitate understanding of the invention. Applicant is required to furnish a drawing under 37

CFR 1.81(c). No new matter may be introduced in the required drawing. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d).

11. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the following claim limitations must

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be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Limitations to be shown in the drawings are:

12. "a processor controlling a program to extract a signal power spectrum from the noise by averaging, wherein said program executes a FFT in which squared magnitudes of the FFT bins are filtered";
13. "the system dwells for several FFT periods at each code search step";
14. "the system applies 1/Nth of the normal search step size for N-fold averaging each FFT period";
15. "an algorithm running in a processor that extracts the signal power spectrum from the noise by averaging"; and,
16. "the system runs a filter on the squared magnitude of an autoconvolution array for each channel."

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet"

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pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

17. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

18. Claims 11-15 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-32 of U.S. Patent No. 6,642,884 (Bryant et al) in view of either one of Tsui et al (H2155) or Abaunza (5,271,034). Bryant et al disclose the system substantially as claimed including, as exemplified by claim 1 thereof,

Claim 1. An SPS system for identifying the location of a receiver in the presence of satellite signal attenuation comprising:

a plurality of orbital satellites sending synchronized encoded signals on a carrier frequency wherein said encoded signals have repeated epochs containing synchronization data;

a receiver for detecting, acquiring, tracking a set of the encoded signals and simultaneously

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determining the code phases of said set with respect to said epochs;

and an aiding source to transmit an approximate location of the receiver and the position and velocity of a plurality of satellites.

19. Bryant et al do not claim "a processor controlling a program" of claim 11, or "an algorithm running in a processor" of claim 14.

20. Abaunza shows a digital processor in Figure 5 showing the execution of an FFT 104 on the received SPS signals to extract a signal power spectrum which is averaged in a detector 108 and used to enable the detection of the desired signal from the received signal. Tsui et al show a process including squaring 208 the magnitude of the received signal, averaging 216 the signal and extracting information from an FFT of the averaged information. The use of a processor and the programs which control its operation for acquiring and detecting navigation signals to be used for location determination are deemed to be conventional in an SPS receiver as shown by each of Tsui et al and Abaunza. Moreover, each processor is capable of providing the intended use in recovering the desired signal from the navigation satellite broadcasts. Thus, the use of a processor running operational software would have been obvious to the skilled artisan at the time of the invention in view of either one of Tsui et al or Abaunza.

21. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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22. Claims 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bloebaum et al (6,204,808) in view of any one of Tsui et al, Abaunza or Gustaffson et al (6,175,602).

23. Bloebaum et al teach the invention substantially as claimed as best understood including a satellite positioning system comprising a plurality of orbiting satellites (GPS satellite), a receiver 42 for detecting, acquiring and tracking encoded satellite navigation signals, an aiding source BTS for transmitting information to an aiding receiver 32 and a processor 34 for running programs to determine the location of the receiver using the received information. Bloebaum et al teach the structural elements of the claims but do not specify the intended use language.

24. Gustaffson et al (6,175,602) disclose a system for enhancing signal detection by using a signal noise reduction process wherein Figure 2 shows the conventionality of a process for determining a power spectrum via an FFT operation 210, squaring the magnitude of the power spectrum 220, averaging 240 and signal detection S. Each of Tsui et al and Abaunza are described in the previous rejection.

25. Although the intended use language fails to provide structural limitations, each of Tsui et al, Abaunza and Gustaffson et al is cited to show the conventionality of the capability of a satellite navigation receiver processor to extract signals from noisy received signals using the claimed intended functions.

26. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sullivan (7,027,486) discloses a system for fast code phase acquisition in a GPS receiver wherein squared magnitudes 512 of the FFT bins 510 are filtered 514. Krasner (6,663,255) discloses a system in Figure 18 comprising a plurality of navigation satellites generating respective GPS signals, a receiver 921, an aiding source 952 and a processor 933.

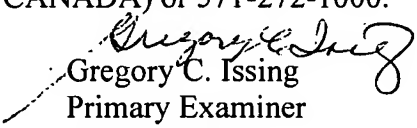
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Hamdy et al (6,229,998) disclose a system including a process (Figure 16) for detecting noise in a spread spectrum signal including the execution of an FFT 1606 to derive a power spectrum which is averaged 1610 for further evaluation 1612. Graupe (5,721,694) disclose a filtering process for enhancing a desired signal in a noisy signal; Fig. 1B shows use of FFT to derive a zero mean power spectrum and is part of the process of Fig. 1C. Blanchard et al (5,612,978) discloses an apparatus for interference cancellation using the process of Figure 2. Keegan (4,972,431) discloses a GPS receiver receiving signals from a plurality of orbiting navigation satellites as well as a source of aiding data (L1 aiding).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory C. Issing whose telephone number is (571)-272-6973. The examiner can normally be reached on Monday - Thursday 6:00 AM- 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Tarcza can be reached on (571)-272-6979. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Gregory C. Issing
Primary Examiner
Art Unit 3662

gci